

Coal Dust Fact Sheet

Coal dust is a form of particulate matter and can affect air quality. Particulate matter is composed of tiny particles suspended in the air. Some particles are visible as dust or smoke. Smaller, invisible particles of coal dust pose a human health risk. Coal dust can also cause nuisance impacts, such as affecting the look or cleanliness of something when it is deposited on surfaces.

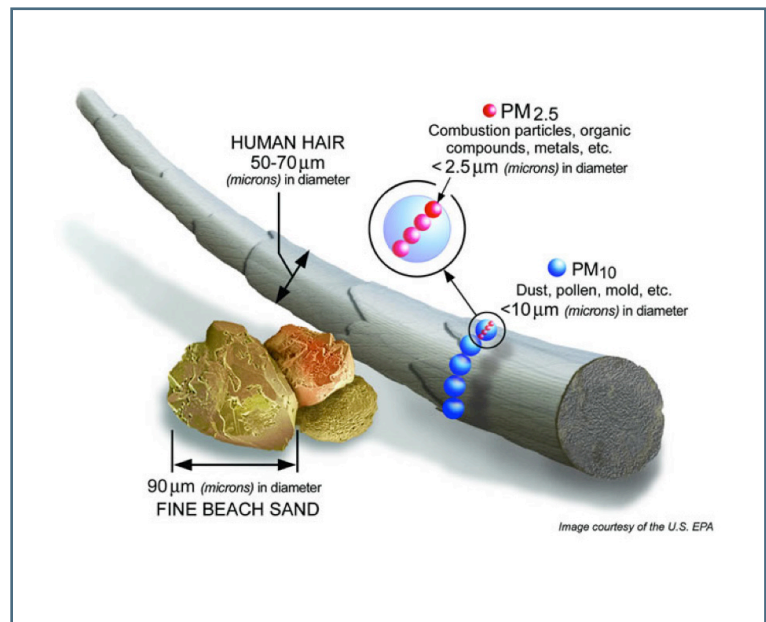
The proposed project would store coal in stockpiles and use large equipment and conveyors to move coal at the terminal. Trains would bring coal to the terminal and coal would be exported by vessels. Coal dust could be emitted during rail transport and unloading, coal handling, and stockpiling activities at the terminal. The vibration of train cars during transit could break larger pieces of coal into smaller particles, creating more dust. Air moving over the train would cause coal dust to blow off the rail cars and settle onto the ground or other surfaces.

What impacts from coal dust were studied?

The study estimated the amount of coal dust that would be deposited around the project area and rail lines. The study looked at potential impacts on human health and the environment from coal dust. It also analyzed the impact of nuisance dust.

Human health impacts may occur if small particulates are inhaled. Particulates are divided into two main size categories. The first particulate category applies to particles the size of pollen or dust that can be inhaled. These are 10 microns and smaller in diameter. These are referred to as PM₁₀ sized particles. For comparison, a human hair is approximately 70 microns in diameter. The second category applies to even smaller particles that can also be inhaled. These are referred to as PM_{2.5} sized particles. These are 2.5 microns and smaller in diameter. These particles pose the greatest risk to human health. Particulate matter is regulated by state and federal air pollution control laws. The

U.S. Environmental Protection Agency established the National Ambient Air Quality Standards (NAAQS) that set safety levels for inhalable particles. Particles larger than 10 microns are not regulated. For evaluating potential impacts from coal dust on sensitive environmental areas, the study uses a threshold for nuisance impacts from coal dust deposition established by the New Zealand Ministry of the Environment.



Particulate matter particle sizes
(Source: U.S. Environmental Protection Agency 2013.)

How were impacts from coal dust analyzed?

The study describes the current conditions at the project area and in Cowlitz County and Washington State. It uses information from databases and other environmental reports. The study considers construction, operation, and rail transportation related to the proposed project. The study considers the coal dust control equipment and practices designed into the proposal. Then it identifies potential impacts from coal dust. Finally, the study includes actions that can mitigate or offset the potential impacts.

For the study, an air sampling analysis was conducted along the BNSF Railway Company (BNSF) main line in Cowlitz County to gather data on existing coal dust emissions. Coal trains currently travel through Washington State and Cowlitz County. Air monitoring equipment collected air samples when coal trains passed by the sampling station. This provided data on coal dust emitted from existing coal trains on the BNSF main line. The data were used in an air quality model to predict potential coal dust impacts from the project-related trains.

What are the impacts from coal dust?

Construction

No coal would be handled at the project area during construction of the proposed project. There would be no impacts related to coal dust during construction of the proposed project.

Operations

Coal dust would be created through the movement of coal into and around the project area, when rail cars are emptied, and when coal is loaded onto vessels. Coal dust would become airborne from the large coal stockpiles in the project area.

In the project area, many of the conveyors and transfer stations for the proposed project would be fully enclosed to minimize dust. The stockpiles and vessel-loading conveyors would not be enclosed. Coal dust could become airborne while on these conveyors.

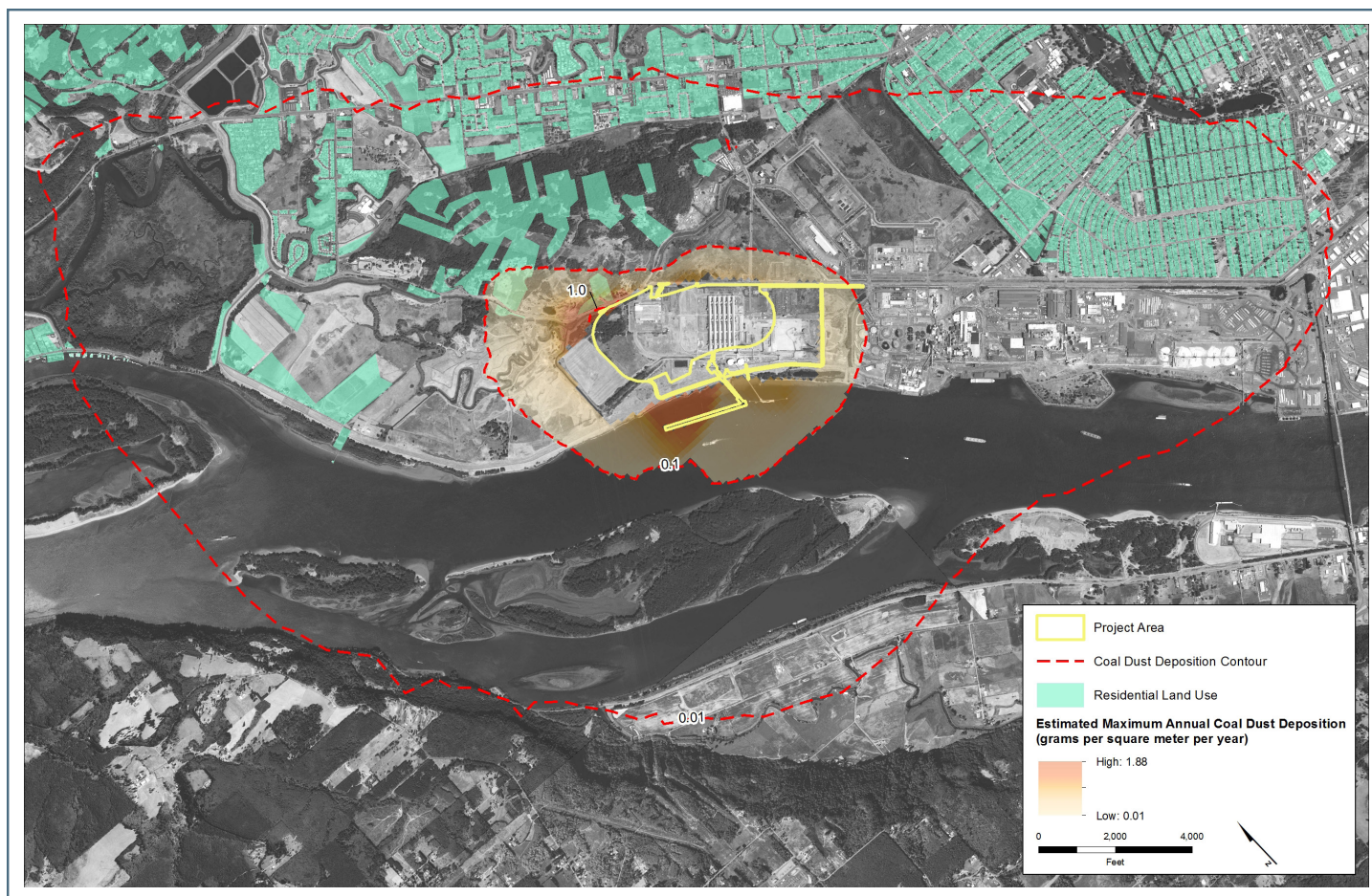
The coal stockpile area would have a system to spray water to control dust. The rail car unloading facility would be inside an enclosed building and would spray water to minimize dust. Coal would be loaded onto vessels using a spout that would move up and down to minimize coal dust.

The study found that with the dust suppression systems, operation of the proposed project would deposit approximately 1.88 grams (approximately 0.25 teaspoon) of coal dust per year per square meter outside of the project area. The study found the proposed project would meet air quality standards for particulate matter. The analysis also evaluated how much coal dust would be deposited near the project area. The study found that coal dust would not exceed federal or state air quality standards. Coal dust would occur with concentrations highest in and near the project area and would decline to low levels within a few thousand feet.

Rail Traffic

Coal dust would become airborne from the rail cars while transporting coal to the proposed project. The rail cars would not be covered. Millennium would require the railroads take steps to control coal dust loss from rail cars. This would be done by shaping the tops of coal in the rail cars into a bread-loaf shape. The shaped profile would limit the loss of coal dust from wind while the train is moving. In addition, Millennium would require that topper agents (i.e., surfactants) be applied to the surface of the coal in rail cars to limit coal-dust loss when rail cars leave the coal mines. A potential mitigation measure is to require a second coating be applied in Pasco, Washington for coal trains coming from Montana and Wyoming. Another potential mitigation measure is to look at options for a second coat of surfactants to be applied to coal trains coming from Colorado and Utah mines.

The study found that coal dust particles from rail cars are typically large and fall close to the rail tracks. Most coal dust particles would be above the size that would pose a health hazard. Smaller coal dust particles would occur but would not deposit in amounts that would exceed air quality standards. Similar results have been concluded by other U.S. and Australian models and analyses of coal dust from trains.



Estimated maximum annual coal dust deposition outside the project area

The study found that concentrations of coal dust from trains would be highest near and immediately adjacent the rail lines and would decline by 50% within 100 to 200 feet of the lines. The study analyzed the rail lines in Cowlitz County and the BNSF main line in Washington State, and concluded that particulate matter from coal dust would be below federal air quality standards. In terms of evaluating nuisance dust, the study found the average and maximum deposition of coal dust along the BNSF main line in Cowlitz County was estimated to be above the nuisance thresholds at 50 and 100 feet. However, this is not a human health impact and no state or federal standards apply.

A federal study done in Montana evaluated the impacts of coal dust from trains on water and soil. It used models to compare concentrations of trace metals in coal dust with EPA standards. This federal study considered impacts on plants, soil, invertebrates, and wildlife. It found that trace metals from coal dust deposited to water and the ground did not cause the water or soils to exceed federal standards.

Vessel Loading and Transit

Coal would be loaded on vessels using conveyor systems to move the coal. The vessel conveyors would not be enclosed. Coal would be loaded onto vessels using a nozzle that would move up and down to reduce coal dust. Coal on vessels would be stored in fully enclosed areas, which would prevent coal dust from blowing off of moving vessels.

What can Millennium do to reduce impacts related to coal dust?

Permits

The following permit would be required for the proposed project:

- Notice of Construction from the Southwest Clean Air Agency

Mitigation Measures

The study recommends the following potential mitigation measures to reduce impacts related to coal dust:

- Establish a reporting process for coal dust complaints in Cowlitz County with the Southwest Clean Air Agency. This would include a coal-dust awareness and investigation system for community members in Cowlitz County. The system would receive complaints or concerns, investigate, respond, resolve and report findings to the complainant and Southwest Clean Air Agency. Millennium would operate the system or provide funding for Southwest Clean Air Agency to operate the system. A report would be submitted annually to Cowlitz County and the City of Longview and posted on the Southwest Clean Air Agency website.
- Monitor and reduce coal dust during operations at the project area. If coal dust levels exceed an established level for particulate matter, action would be taken to reduce coal-dust emissions. With the Southwest Clean Air Agency, identify locations where coal-dust monitoring could be conducted, such as at the coal piles, on the dock, and where the rail line enters the terminal. Information would be reported to Southwest Clean Air Agency, Cowlitz County and Ecology. Millennium will gather data along the fenceline of the project area before operations begin to identify current air quality levels.
- Reduce coal-dust emissions from rail cars. Coal on BNSF trains from Montana and Wyoming must be appropriately shaped and surfactant applied at the mine site and in Pasco, Washington. For Union Pacific Railroad (UP) trains from Colorado and Utah, surfactant would be applied at the mine site. Options for applying a second coating would be evaluated.
- Provide annual information on coal dust and rail traffic related to the proposed project to the Columbia River Gorge Commission.

Where can I find more information?

Chapter 5, Section 5.7, *Coal Dust*, of the Draft Environmental Impact Statement (EIS) has detailed information on current conditions, the analysis, and findings related to the potential impacts from coal dust from the proposed project. The following sections of the Draft EIS also include detailed information and analyses relevant to coal dust: Chapter 4, Section 4.5, *Water Quality*; Section 4.6, *Vegetation*; Section 4.7, *Fish*; and Section 4.8, *Wildlife*.

Additional fact sheets that discuss water quality and surface water and fish, plants, and animals are also available.

Visit www.millenniumbulkeiswa.gov for more information on the proposed project and the Draft EIS.